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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/751,183

12/30/2003

Jin Ho Park

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36872

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THE LAW OFFICES OF ANDREW D. FORTNEY, PH.D., P.C.

7257 N. MAPLE AVENUE

BLDG. D, 3107

FRESNO, CA 93720

EXAMINER

QUACH, TUAN N

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/751,183	Applicant(s) PARK, JIN HO	
	Examiner Tuan Quach	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/14/04</u> . | 6) <input type="checkbox"/> Other: ____  |

### **DETAILED ACTION**

Initially, it is noted that an Information Disclosure Statement bearing Serial No. 10/751,183 with docket number, filing date and applicant differing from those of the instant application and citing prior art unrelated to the subject matter of the instant application. Accordingly, said IDS is deemed to correspond to an error and is not considered. Applicant is requested to resubmit said IDS with correct information should it desire the said IDS to be considered.

### ***Drawings***

The drawings are objected to because of the following reasons. Correction is required. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Informalities***

The following obvious informalities should be corrected: typing errors in claim 9 line 2; in the abstract last line.

### ***Objection – Improper Dependent Claim***

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Claim 9 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation regarding the supporting structures inserted in the positioning holes in claim 9 lines 2-3 already exist in the last two lines of claim 6 from which claim 9 depends .

***Rejection – 35 U.S.C. 112***

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "wherein the supporting structures have a length greater than a total length of the interconnected outer wires." There is insufficient antecedent basis for this limitation in the claim regarding the supporting structures and regarding the interconnection of the outer wires.

***Rejection – 35 U.S.C. 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 4, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara taken with Hong.

Regarding claims 1 and 4, Hara (5,498,902) teaches, see, e.g., Figs. 1-7, column a semiconductor package 49 comprising a semiconductor chip 47 connected to lead frames, e.g., 33/55, outer leads 54 protruding from a surface of the semiconductor package (the via holes corresponding to the holes or spaces the leads occupied), grooves or linking holes 50/52. Although Hara does not explicit recite the provision of metal lines, such would have been apparent and obvious where outer leads can be connected to power supply line and grounding lines (column 9 lines 40-42) and including connections to leads 51 and as taught by Hong (6,522,020) column 4 lines 4-22, wherein metal line 27 is provided for electrical interconnection including connection to lead frame 50.

Regarding claims 2, 3, and 7, it would have been obvious to have positioned the grooves at a desired location or face given the obvious few alternatives, including opposite to the outer leads to facilitate the insertion of the outer leads to the grooves in connecting stacking the packages by inserting the outer leads of a semiconductor package into grooves of another semiconductor package as taught by Hara, column 11 lines 28-36.

Claims 5, 6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara taken with Hong as applied to claim 4 above, and further in view of Lee.

Regarding claim 5, Hara taken with Hong as applied above does not show the supporting structures from the surface of the protruding outer wires.

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Lee (5,706,172) teaches, column 2 line 42 to column 3 line 45 the provision of supporting bars in stacking semiconductor chips. The supporting bars provide mechanical support for the whole package.

It would have been obvious to one skilled in the art in practicing the above invention to have employed the supporting structures in stacking the semiconductor chips as suggested by Lee wherein such supporting bars would provide mechanical support for the whole package.

Regarding claim 6, it would have been obvious to have inserted the supporting structures into holes that are positioned on the semiconductor chip to be joined as shown in Hara, as delineated above, including connection or linking holes e.g., holes 28, 29, 52, wherein such holes would facilitate the positioning and attaching of the stacked chips.

Regarding claim 8 regarding the length of the supporting structure, such selection of the appropriate dimension would have been within the purview of one skilled in the art to provide support, including the selection of greater than the length of the outer wires in order to provide the support for the chips with the outer wires produced.

Regarding claim 9, this claim is deemed objectionable as including same limitation in claim 6 from which it depends as delineated above. The prior art rejection regarding claim 6 thus would be applicable to claim 9 as well.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Park et al. (5,834,836 and 6,080,931) and Nose (6,040,621) are made of record.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Quach whose telephone number is (571) 272-1717. The examiner can normally be reached on M - F from 8:30 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Nathan Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1562.



**Tuan Quach**  
**Primary Examiner**